



**OFF-GRID POWER SUPPLY FOR MOTUFOVA SECONDARY SCHOOL**



## Powering a secondary school through the Sunny Island System

Located in the middle of the Pacific Island Countries (PiC), Tuvalu has a population of approximately 9 000 people living in 9 atolls/islands. The ambient conditions in the area, such as salty air, high humidity and temperatures of up to 35 °C, present quite a challenge for electrical equipment in general, but one you can be sure the Sunny Island 5048 has been specifically designed to stand up to.

Motufoua Secondary School on the Island of Vaitupu, accommodates up to 600 children from all over the Tuvalu region. The school's energy requirements, which include power for cooking, lighting, air conditioning and other electrical equipment, require reliable and adequate energy supply to keep the school running. Challenges encountered by SMA to overcome included the general electricity supply being disconnected from the diesel grid multiple times a day, and no electricity supply from Island's main grid at night.

With a Sunny Island hybrid system using a large photovoltaic system as main energy supply, and the main grid of the Island as a time-independent energy source, all these requirements are today fulfilled. The Island now lowers their dependency on fuel (as well as increasing diesel costs) and uses the sophisticated technology from SMA to educate the students about the system's output and the future of off-grid energy supply to remote regions.

In locations with challenging conditions, you can rely on Sunny Island systems to give you the power you need.

### Plant size

- nominal power stand-alone inverter: 45 kW
- installed PV power: 46 kW
- battery size: 533 kWh
- Connection to greater diesel grid

### Location

- South Pacific, Island of Vaitupu
- 7° 29' 0" South, 178° 41' 0" East
- Operator: Tuvalu Electricity Corporation (TEC)
- Planning and Realisation: Eco Kinetics, Brisbane, Australia
- Commissioned: 2009

### Annual Yield

- Approximately 84 000 kWh (1 800 kWh/kWp)
- Reduction in CO<sub>2</sub> by approximately 120 tonnes
- Reduction in fuel by approximately 65 000 l

### Inverter

- 9 x Sunny Island 5048
- 6 x Sunny Mini Central 8000TL
- 1 x Multicluster Box 12.3

The ideal solution for reliable and autonomous energy supply